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ABSTRACT

This paper lists goals for curriculum development in environmental education prepared in response to objectives proposed at the Tbilisi Intergovernmental Conference on Environmental Education in 1977. The goals are presented in four levels. In level one, the ecological foundation level, nine conceptual components are presented including individuals and populations, homeostasis, and energy flow. Level two, the conceptual awareness level, presents seven goals to develop a conceptual awareness of how individuals and collective actions may influence the relationship between quality of life and the quality of the environment. Level three, the investigation and evaluation level, provides for the development of the knowledge and skills necessary to permit investigation of environmental issues and evaluation of alternative solutions. Finally, level four, the environmental action skills level, is related to training and application. A list of assumptions made by the developers regarding the goals is also included. (BB)

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GOALS FOR CURRICULUM DEVELOPMENT IN ENVIRONMENTAL EDUCATION[1]

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SUPERORDINATE GOAL

. . . to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between quality of life and quality of the environment. [2]

1. This document represents the final draft of a research project prepared and validated early in 1978 against the Objectives for EE arising from the Tbilisi Conference. Subsequently, the document was submitted to and revised in accordance with recommendations made by a validity panel consisting of five professional environmental educators. This panel was composed of Drs. Robert S. Cook, John Disinger, Robert George, Harold McKenna, and R. Thomas Tanner.

2. Adapted from Gary D. Harvey, A Conceptualization of Environmental Education. In J. L. Aldrich, A. M. Blackburn & G. A. Abel (Eds), A Report on the North American Regional Seminar on Environmental Education. Columbus, Ohio: SMEAC Information Center, 1977.

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SUBORDINATE GOALS (BY LEVEL) FOR CURRICULUM DEVELOPMENT

Level I. Ecological Foundations Level:

This level seeks to provide the receiver with sufficient ecological foundations knowledge to permit him/her eventually to make ecologically sound decisions with respect to environmental issues.

The ecological foundations level would minimally include the following conceptual components:

A. Individuals and populations.

B. Interactions and interdependence.

C. Environmental influences and limiting factors.

D. Energy flow and materials cycling (biogeochemical cycling).

E. The community and ecosystem concepts.

F. Homeostasis.

G. Succession.

H. Man as an ecosystem component.

I. The ecological implications of man's activities and his communities.

Level II. Conceptual Awareness Level - Issues and Values.

This level seeks to guide the development of a conceptual awareness of how individual and collective actions may influence the relationship between quality of life and the quality of the environment . . . also, how these actions result in environmental issues which must be resolved through investigation, evaluation, values clarification, decision making, and finally, citizenship action.

Goals at this level are formulated to provide opportunities for receivers to conceptualize. . .

A. . . . how man's cultural activities (e.g., religious, economic, political, social, etc.) influence the environment from an ecological perspective.

B. . . . how individual behaviors impact on the environment from an ecological perspective.

C. . . . a wide variety of environmental issues and the ecological and cultural implications of these issues.

D. . . . the viable alternative solutions available for remediating discrete environmental issues and the ecological and cultural implications of these alternative solutions.

E. . . . the need for environmental issue investigation and evaluation as a prerequisite to sound decision making.

F. . . . the roles played by differing human values in environmental issues and the need for personal values clarification as an integral part of environmental decision making.

G. . . . the need for responsible citizenship action (e.g., persuasion, consumerism, legal action, political action, ecomanagement) in the remediation of environmental issues.

Level III. Investigation and Evaluation Level:

This level provides for the development of the knowledge and skills necessary to permit receivers to investigate environmental issues and evaluate alternative solutions for remediating these issues. Similarly, values are clarified with respect to these issues and alternative solutions. Goals at this level are presented in two components.

Component A: Goals for Component A are to develop in receivers . . .

A. . . . the knowledge and skills needed to identify and investigate issues (using both primary and secondary sources of information) and to synthesize the data gathered.

B. . . . the ability to analyze environmental issues and the associated value perspectives with respect to their ecological and cultural implications.

C. . . . the ability to identify alternative solutions for discrete issues and the value perspectives associated with these solutions.

D. . . . the ability to autonomously evaluate alternative solutions and associated value perspectives for discrete environmental issues with respect to their cultural and ecological implications.

E. . . . the ability to identify and clarify their own value positions related to discrete environmental issues and their associated solutions.

F. . . . the ability to evaluate, clarify, and change their own value positions in light of new information.

Component B: Goals for Component B are to provide receivers with opportunities to . . .

G. . . . participate in environmental issue investigation and evaluation.

H. . . . participate in the valuing process in a manner as to permit the receiver to evaluate the extent to which his/her values are consistent with the superordinate goal of achieving and/or maintaining a dynamic equilibrium between quality of life and uality of the environment.

Level IV. Environmental Action Skills Level - Training and Application:

This level seeks to guide the development of those skills necessary for receivers to take positive environmental action for the purpose of achieving and/or maintaining a dynamic equilibrium between quality of life and the quality of the environment. Goals at this level are presented in two components.

Component A: The goal for Component A is to develop in receivers. . .

A. . . . those skills which will permit them to effectively work toward ends which are consist with their values and take either individual or group action when appropriate, i.e., persuasion, consumerism, political action, legal action, or ecomanagement.

Component B: The goals for Component B are to provide receivers with opportunities to . . .

B. . . . make decisions concerning environmental action strategies to be used with respect to particular environmental issues.

C. . . . apply environmental action skills to specific issues, i.e., to take citizen action on one or more issues.

D. . . . evaluate the actions taken with respect to their influence on achieving and/or maintaining a dynamic equilibrium between quality of life and the quality of the environment.

ASSUMPTIONS MADE BY THE DEVELOPERS REGARDING THE GOALS FOR CURRICULUM DEVELOPMENT IN ENVIRONMENTAL EDUCATION

The developers' assumptions were as follows:

1. That the goals for curriculum development in EE are appropriate for use in guiding both formal and nonformal EE curriculum development efforts.

2. That a "receiver" can be thought of as any person, of any age, who can be reached through either the formal or nonformal educational sectors.

3. That the superordinate goal is philosophically correct as stated. That this goal represent the most appropriate direction for environmental education if EE is going to meet the tremendous challenges facing mankind both today and tomorrow.

4. That ecological foundations are critical to any EE program as prerequisite or corequisite cognitive knowledge. That ecological concepts are an integral part of environmental education. Des this premise, it remains cogent to make certain that receivers distinguish between environmental educ and ecology per se.

5. That, regardless of the importance of methodologies such as outdoor education, environmental interpretation, acclimatization, and outdoor recreation, these are not a part of the substantive

structure of EE per se. Therefore, ancillary goals representing these activities directly do not appear here although a number of the goals for curriculum development in EE might be facilitated by the use of these and other methodologies.

6. That some level of "environmental sensitivity" is probably critical to the receiver's being willing and/or able to engage profitably in Levels II, III, and IV of this set of goals. Irrespective of this assumed prerequisite, the developers have arbitrarily omitted goals dealing with sensitivity on several grounds. These are:

A. Sensitivity would have to be represented as foundational.

B. Sensitivity per se cannot be operationalized in a manner as to provide for any measurable criterion level of affect.

C. Every individual will enter the EE process with a unique set of affective predisposition generated by the individual's own background of experiences.

D. Like values clarification, sensitivity will, in part, result from EE activities themselves. In particular, judiciously developed instructional programs in ecological foundations and conceptual awareness should measurably assist in the sensitization proce

7. The process of valuing, values clarification and moral reasoning are implicit in the goals, particularly in Levels III and IV.

9. That environmental action is, in fact, represented by the five categories of action as stated in the goals (or in combinations of these categories). The assumption is also made that these action categories (or combinations of them) are exhaustive.

9. That the concept of maintaining and/or achieving a dynamic equilibrium (homeostasis) must be interpreted from both cultural and ecological perspectives. That said equilibrium may well result in a distinct compromise between quality of life on one hand and quality of the environment on the other. The curriculum developer must be constantly aware of this in order to produce curricular materials that look rationally at both the cultural and ecological costs involved in achieving a true equilibrium.

10. That the phrase, ". . . to provide receivers with opportunities to apply environmental action skills to specific issues" implies no more than what is stated. That an educator cannot ethically force a receiver to take action but, instead, should provide mechanisms whereby action can be taken if desired.

11. That instructional objectives would be generated under each subordinate goal during curriculum development.

12. That EE is definitely an interdisciplinary pursuit and that numerous disciplines must be reflected in the generation of any set of goals for curriculum development. Only in this manner can EE help receivers to successfully meet the challenges facing them as world citizens.

DEVELOPER'S INITIAL CONTENT VALIDITY ASSESSMENT

The developers' initially assessed the content validity of the goals by comparing the goals expressed at each level of their document against the five (5) categories of environmental education objectives proposed at the Tbilisi Intergovernmental Conference on Environmental Education in 1977. These objectives are listed and operationalized in the Tbilisi Conference Recommendations and are reported in Vol. III, No. 1 (January 1978) of Connect, the UNESCO-UNEP Environmental Education Newsletter. The Tbilisi objectives follow:

AWARENESS: to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

KNOWLEDGE: to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

ATTITUDES: to help social groups and individuals acquire a set of values and feelings of concern for the environment and motivation for actively participating in environmental improvement and protection.

SKILLS: to help social groups and individuals acquire the skills for identifying and solving environmental problems.

PARTICIPATION: to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

The comparison grid (validity check) follows.

Developers' Validity Assessment
A Comparison of the Goals for Curriculum Development In Environmental Education to the Tbilisi Conference Categories of Objectives (1977)

Tbilisi Objectives					Developers' EE Curriculum Goals by Level	
1 Awareness	2 Knowledge	3 Attitudes	4 Skills	5 Participation		
X	X				Level I.	Ecological Foundations Level All Subcomponents (A-I)
1	2	3	4	5	Level II.	Conceptual Awareness Level Subcomponent:
X	X					A.
X	X					B.
X	X					C.
X	X					D.
X	X	X				E.
X	X	X				F.
X	X	X				G.
1	2	3	4	5	Level III.	Investigation and Evaluation Level Subcomponent:
X	X		X			A.
X	X		X			B.
X	X		X			C.
X	X		X			D.
X		X	X			E.
X	X	X	X			F.
X	X	X	X	X		G.
X		X				H.
1	2	3	4	5	Level IV.	Action Skills Level Subcomponent:
			X			A.
			X	X		B.
				X		C.
				X		D.